

WHAT IS CLAIMED IS:

1. An application program interface (API) call replay tool for creating and submitting API calls based upon input API call records, the replay tool comprising:

5 a symbol table for mapping references within an input API call record into a memory space allocated to the API call replay tool; and

an API call builder for creating an API call code sequence for invoking an API call corresponding to the input API call record, wherein memory references within the API call code sequence are specified according to a set of mapping entries within the symbol table.

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2. The API replay tool of claim 1 further comprising:

a memory manager that maintains memory blocks associated with particular execution contexts for the input API call records.

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3. The API replay tool of claim 2 further comprising:

a thread handler for establishing a thread memory structure, by the memory manager, that corresponds to a thread identified in the input API call record.

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4. The API replay tool of claim 1 further comprising an execution template

for maintaining a set of resources from a binary associated with the input API call record.

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5. The API replay tool of claim 4 wherein an API call executer issues the code sequence within a binary execution environment, including the set of resources, established by the execution template.

6. The API replay tool of claim 1 further comprising a replay engine for coordinating the operation of a set of handlers within the API replay tool to render, from the input API call record, an API call within a context defined by the API replay tool.

7. The API replay tool of claim 6 wherein the set of handlers includes a callback handler providing a callback destination for a callback function associated with the input API call record.

5 8. The API replay tool of claim 1 wherein the memory references comprise pointers.

9. The API replay tool of claim 1 wherein the memory references comprise variables.

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10. The API replay tool of claim 1 wherein the code sequence comprises assembly code instructions.

11. A method for replaying API calls based upon input API call records, the  
15 method comprising:

mapping references within an input API call record into a memory space allocated to an API call replay tool; and

creating an API call code sequence for invoking an API call corresponding to the input API call record, wherein memory references within the API call code sequence are  
20 specified according to a set of mapping entries.

12. The method of claim 11 further comprising:

maintaining, by a memory manager, memory blocks associated with particular execution contexts for the input API call records.

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13. The method of claim 12 further comprising:

establishing, by the memory manager, a thread memory structure that corresponds to a thread identified in the input API call record.

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14. The method of claim 11 further comprising:  
maintaining, by an execution template, a set of resources from a binary associated  
with the input API call record.
- 5 15. The method of claim 14 further comprising:  
issuing, by an API call executor, the code sequence within a binary execution  
environment, including the set of resources, established by the execution template.
16. The method of claim 11 wherein the memory references comprise  
10 pointers.
17. The method of claim 11 wherein the memory references comprise  
variables.
- 15 18. The method of claim 11 wherein the code sequence comprises assembly  
code instructions.
19. A computer-readable medium including computer-executable instructions  
facilitating replaying API calls based upon input API call records, the computer-  
20 executable instructions facilitating performing the steps of:  
mapping references within an input API call record into a memory space allocated  
to an API call replay tool; and  
creating an API call code sequence for invoking an API call corresponding to the  
input API call record, wherein memory references within the API call code sequence are  
25 specified according to a set of mapping entries.
20. The computer-readable medium of claim 19 further comprising computer-  
executable instructions facilitating:  
maintaining, by a memory manager, memory blocks associated with particular  
30 execution contexts for the input API call records.

21. The computer-readable medium of claim 20 further comprising computer-executable instructions facilitating:

establishing, by the memory manager, a thread memory structure that corresponds to a thread identified in the input API call record.

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22. The computer-readable medium of claim 19 further comprising computer-executable instructions facilitating:

maintaining, by an execution template, a set of resources from a binary associated with the input API call record.

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23. The computer-readable medium of claim 22 further comprising computer-executable instructions facilitating:

issuing, by an API call executor, the code sequence within a binary execution environment, including the set of resources, established by the execution template.

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24. The computer-readable medium of claim 19 wherein the memory references comprise pointers.

25. The computer-readable medium of claim 19 wherein the memory references comprise variables.

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26. The computer-readable medium of claim 19 wherein the code sequence comprises assembly code instructions.

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